

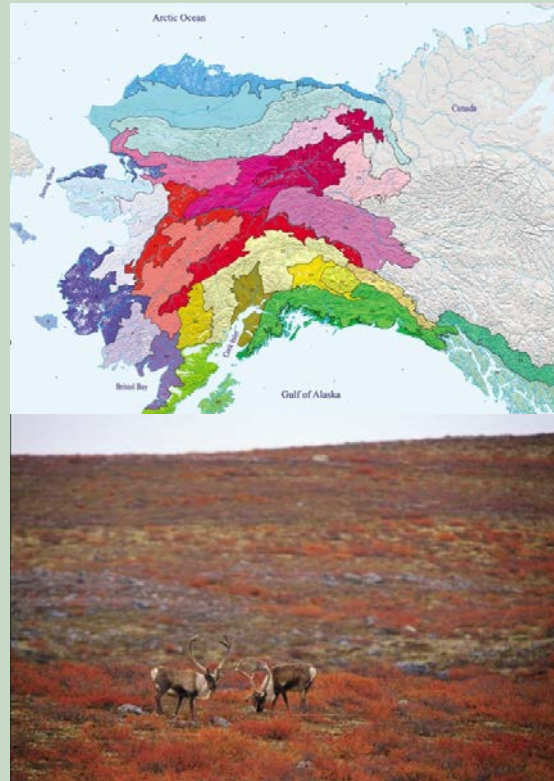
# OVERVIEW

## U.S. National Vegetation Classification

A  
Classification  
Partnership



Don Faber-  
Langendoen



ALASKA GEOSPATIAL COUNCIL  
February 23, 2018

# USNVC: An Ecological Vegetation Classification



Vegetation classification is the process of grouping stands (ecosystem locations) based on shared vegetation and ecological characteristics.

As with any taxonomy, vegetation classification is used to simplify the complex patterns of ecosystems in order to communicate and share information.

# Objectives of USNVC Standard

- ✓ Standards for vegetation data collection and analysis
- ✓ Facilitate inter-agency collaboration and product consistency
- ✓ Establish national set of standards for classifying existing vegetation
- ✓ Foster systematic vegetation classification for the U.S.
- ✓ Develop minimum metadata requirements
- ✓ Collaborate between state, federal and international efforts

# NVC Partners

## FGDC Vegetation Subcommittee

U.S. Forest Service: Lead Agency, Chair



# International Partnerships

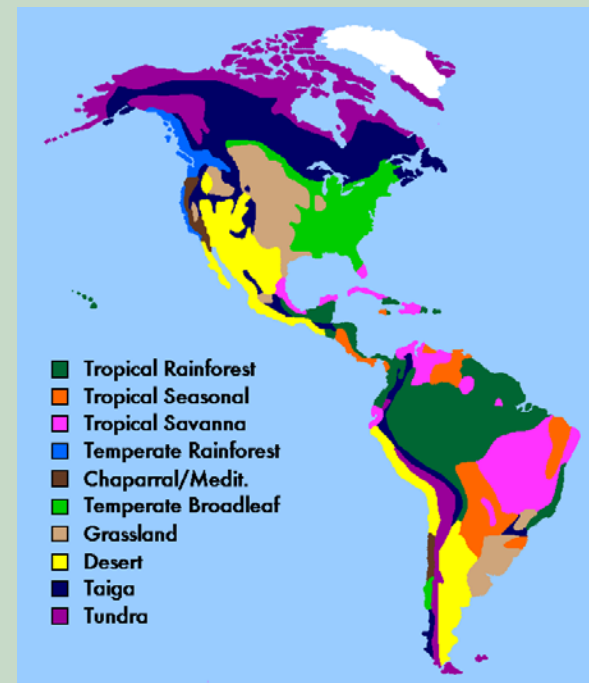
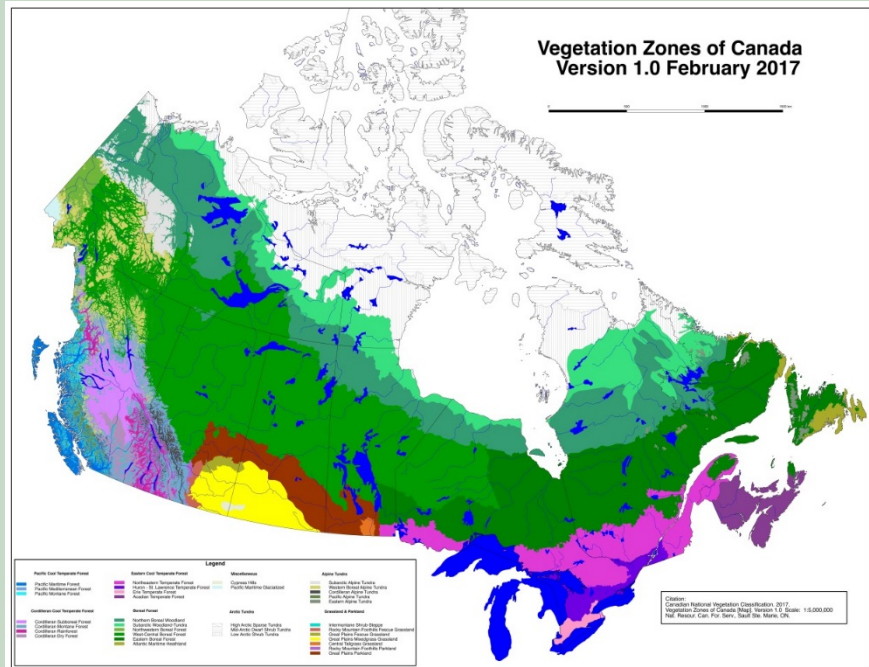
(based on the EcoVeg Approach)

## CANADIAN NATIONAL VEGETATION CLASSIFICATION

A classification for all the natural and semi-natural vegetation in Canada.

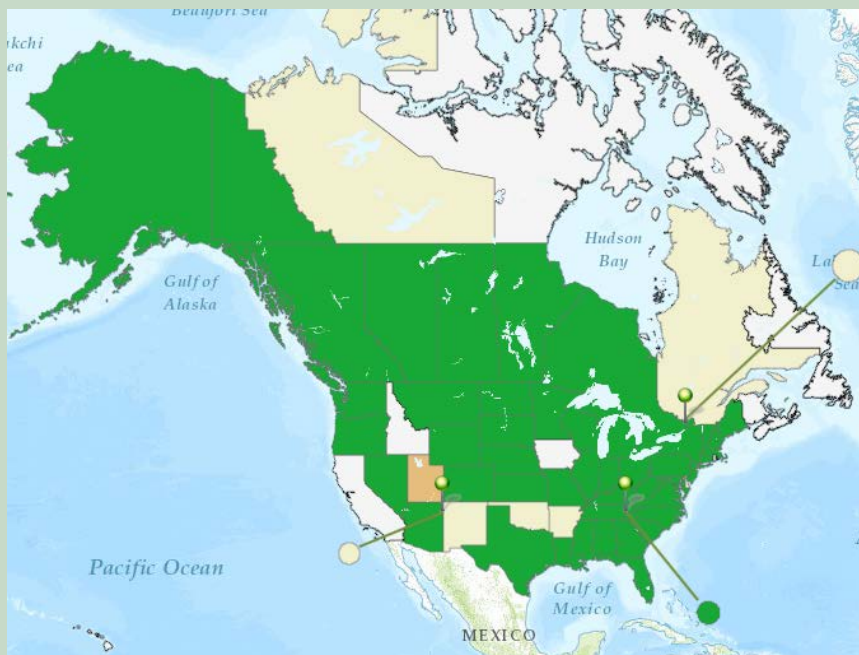
## INTERNATIONAL VEGETATION CLASSIFICATION

A classification of global vegetation. Best developed in the Americas and Africa.

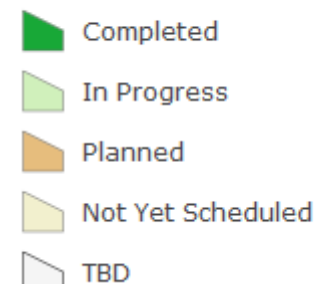


# State Partnerships

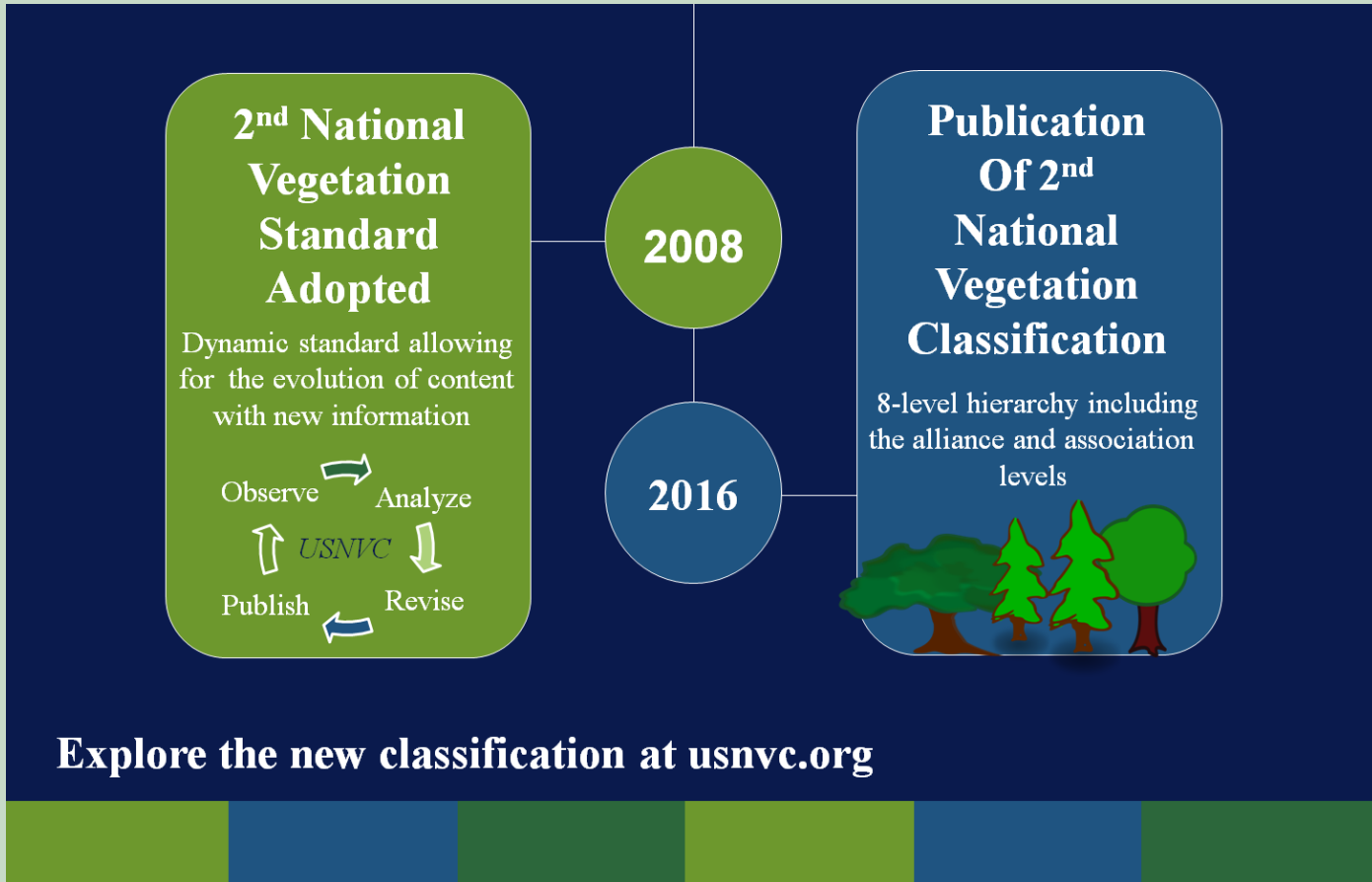
- A large number of states helped the USNVC
- Many directly use the USNVC as their state classification
- Most have direct access to USNVC information - Natural Heritage Network / USNVC Classification Database (Biotics 5)



## Biotics 5 Rollout - Current Schedule



# USNVC Standard: Guides classification development



# First Release of USNVC 2.0: February 2016

## Adaptable, ecology-based U.S. National Vegetation Classification for monitoring multi-scale change debuts today

Public release of a 20-year collaborative effort to devise a unified and consistent national reporting system for plant communities opens new avenues for broad-scale and long-term analyses of landscape change.

FOR IMMEDIATE RELEASE: Tuesday, 23 February 2016  
Contact: Liza Lester, 202-833-8773 ext. 211, [LLester@esa.org](mailto:LLester@esa.org)



## 4 Key Stats: U.S. National Vegetation Classification (USNVC)



### THE PARTNERSHIP



<http://www.esa.org/esa/national-vegetation-classification-press-release/>



# USNVC: a comprehensive classification of ecosystems

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- ◉ A great need to systematically inventory, classify, and map the incredible diversity of ecosystems on Earth in the face of ever intensifying land uses and changing landscapes.
- ◉ The implications for biodiversity, ecological processes, and ecosystem services are profound, as historic natural systems are degraded, or replaced by novel ecosystems.

# NVC Hierarchy - natural and cultural

VEGETATED AREAS	Natural Vegetation	Cultural Vegetation
<b>Upper</b>		
	Level 1- Formation Class	Level 1- Cultural Class
	Level 2- Formation Subclass	Level 2- Cultural Subclass
	Level 3- Formation	Level 3- Cultural Formation
		Level 4- Cultural Subformation
<b>Mid</b>		
	Level 4- Division	Level 5- Cultural Group
	Level 5- Macrogroup	Level 6- Cultural Subgroup
	Level 6- Group	
<b>Lower</b>		
	Level 7- Alliance	Level 7- Cultural Type
	Level 8- Association	Level 8- Cultural Subtype
<b>NONVEGETATED AREAS</b>	Not included in the NVC.	

# Cultural and Natural Forests

Orchards and  
Tree Lawns



Forest  
Plantations



Natural  
Forests



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Apple orchard  
(Empire)

Douglas fir  
plantation (40  
yr)

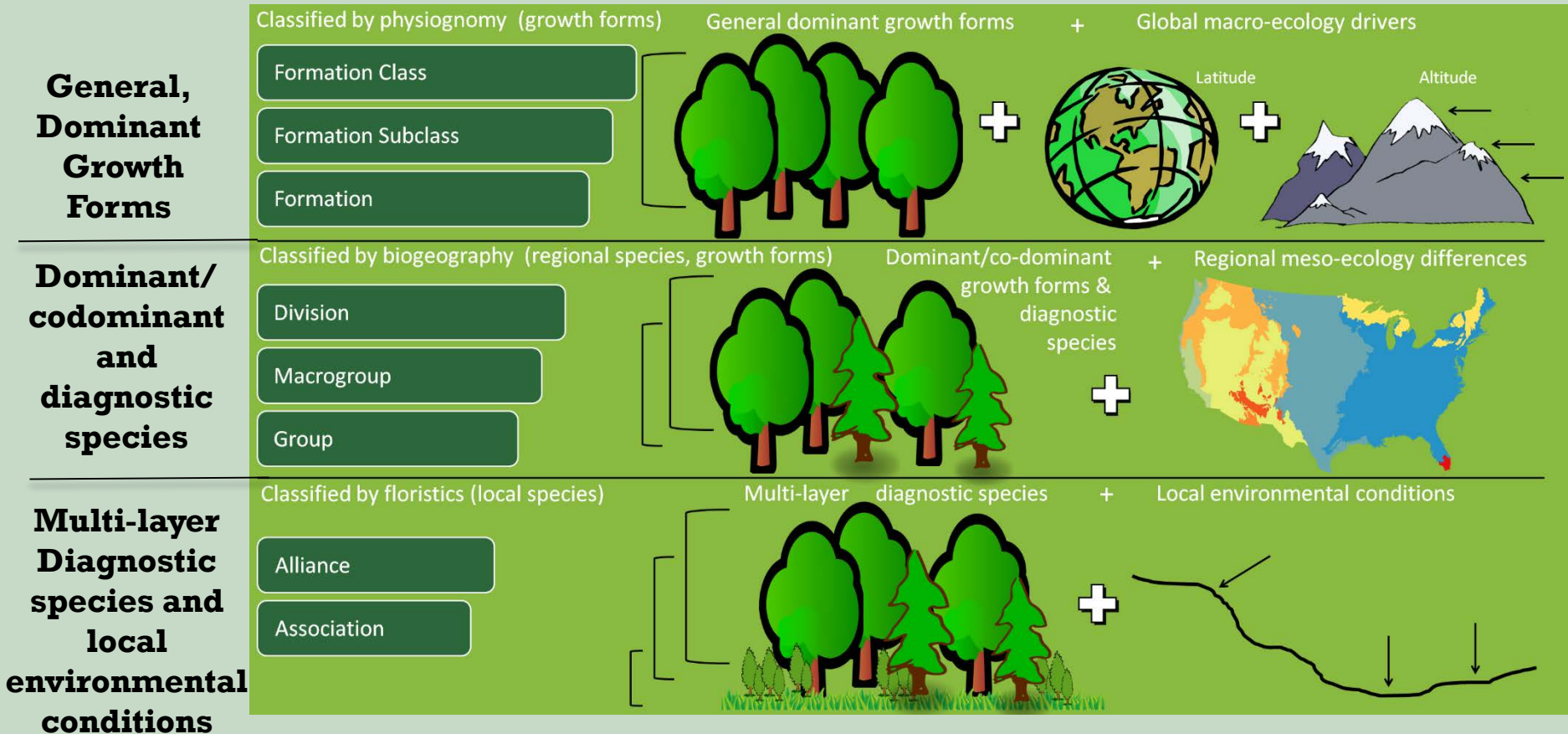
Beech - maple forest,  
partially logged

Cultural Vegetation



Ruderal and Native  
Vegetation

# NVC Hierarchy - Natural Vegetation



<http://usnvc.org/data-standard/natural-vegetation-classification/>

# USNVC - Upper Levels: Formation Subclass (L2)

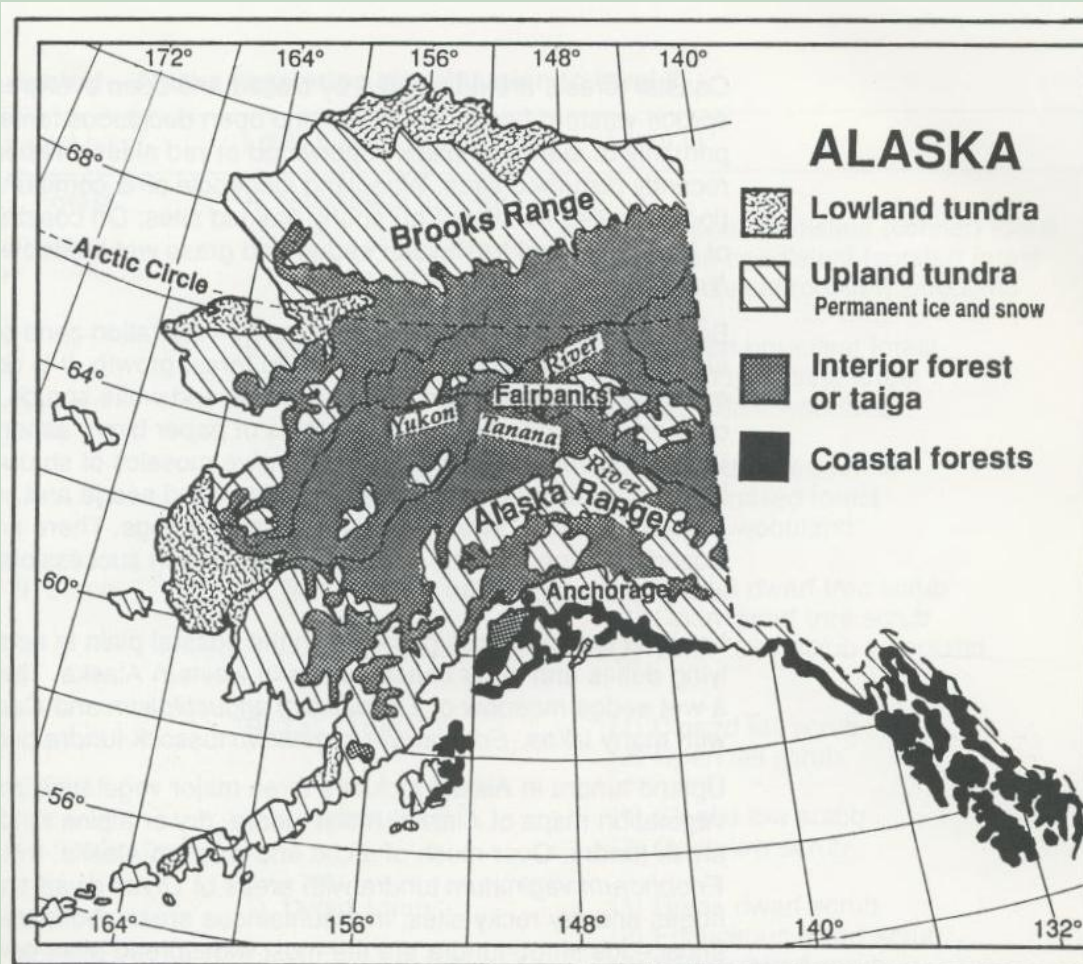
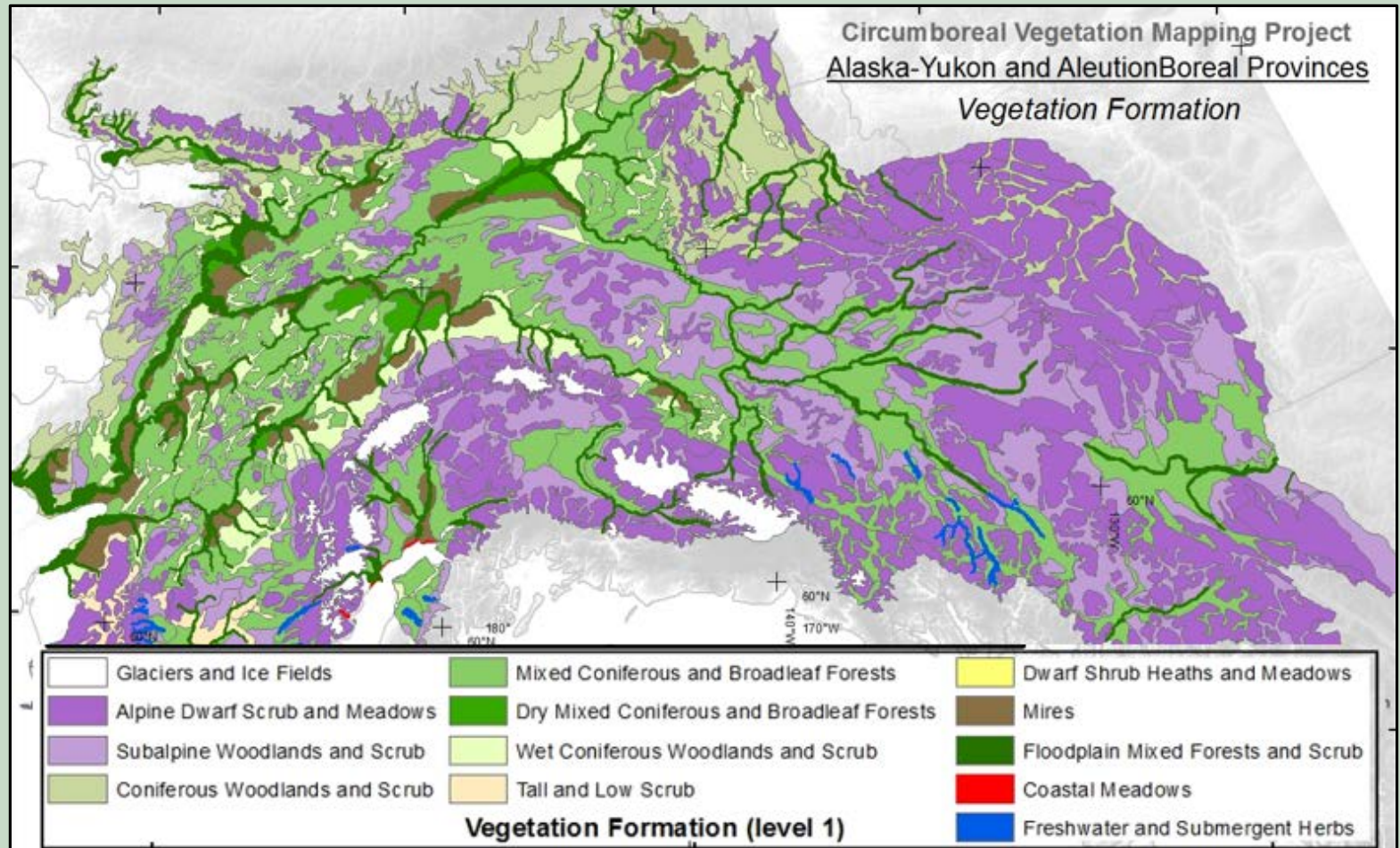
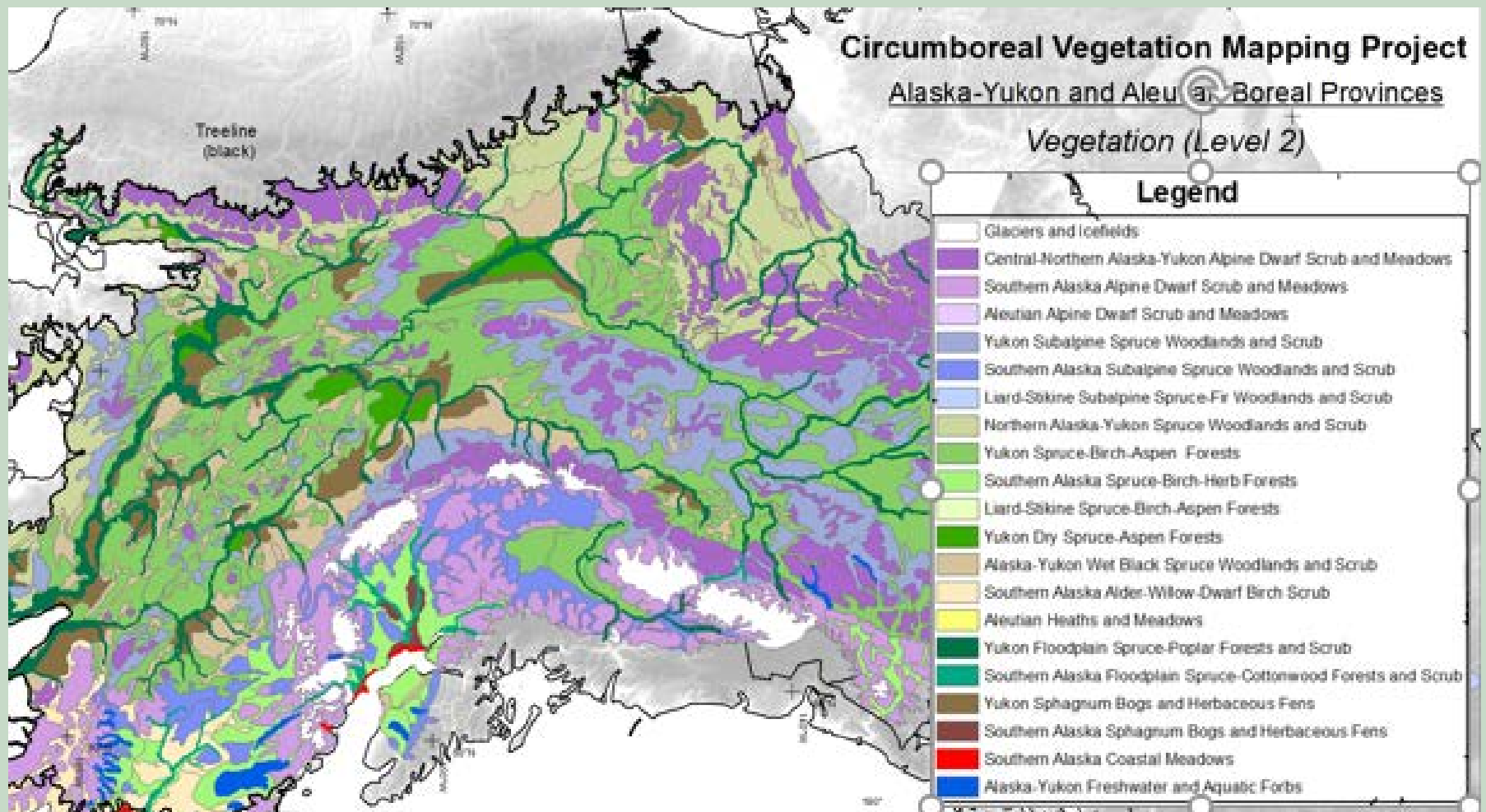


Figure 2—Vegetation type map of Alaska.

# USNVC: Upper Levels: Formation (L3) Alaska - complete

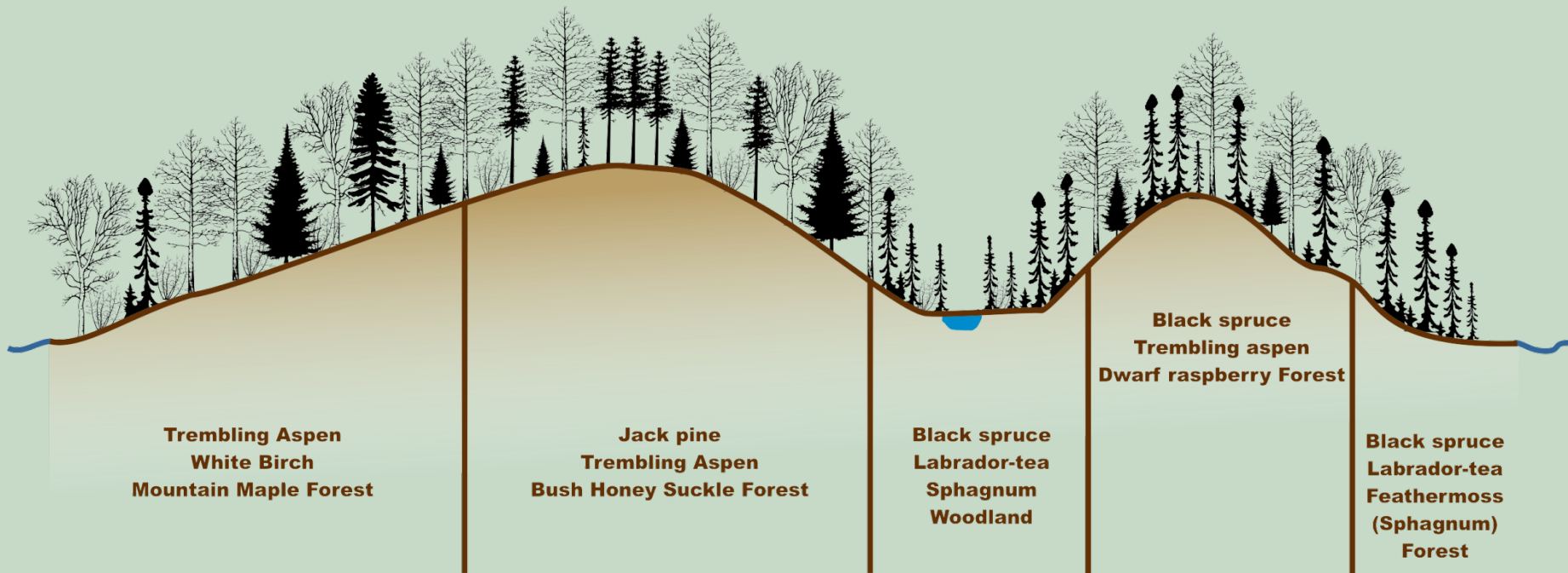


# USNVC: Mid: Group (L6) Alaska - in review



# USNVC-Lower: Alliance, Association(L7-8) Alaska - in development

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# Dynamic Content Standard, Based On Peer Review

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- ◎ The NVC Standard “*presents a process standard to be used to create a dynamic content standard for all vegetation types in the classification.*” (FGDC 2008, p.1).
- ◎ Ongoing improvement of the USNVC is based on new information or analyses, assessed through a peer review process maintained by ESA Vegetation Panel.
- ◎ At all times, there is an authoritative, standard classification available to users (posted on [usnvc.org](http://usnvc.org)).

# USNVC Data Management and the Dynamic Process

## 1. Maintain Dynamic Content



USGS  
NatureServe

## 5. Maintain Supporting Data



## 4. Publish Updates

Ecological Society of America

## 2. Submit Proposals:

- Field Data
- Literature



Vegetation ecologists

## 3. Review Proposals



# NVC REVIEW BOARD

(appointed by the ESA Panel)

- Expertise is in place
- Peer review submission tool ready March 2018
- Funding needed for software development

	Region	Regional Editor
<b>WEST</b>	Warm Desert	Este Muldavin
	Californian	Todd Keeler-Wolf
	Great Basin	Marion Reid
	Vancouverian (Pacific Coastal)	Del Meidinger (CA) / Beth Schulz (US)
	Rocky Mountain	Jack Triepke
<b>GREAT PLAINS</b>	Great Plains	Bruce Hoagland
<b>EAST</b>	Laurentian-Acadian	Don Faber-Langendoen
	Central Interior-Midwest	Shannon Menard
	Appalachian-Northeast	Lesley Sneddon
	Southeast Coastal Plain	Alan Weakley
<b>CARIBBEAN</b>	Caribbean	Fito (Humfredo) Marcano
<b>BOREAL</b>	Boreal Alaska	TBD (US) / Ken Baldwin (CA)
<b>ARCTIC</b>	Arctic (& alpine) Alaska	Scott Guyer (US) / TBD (CA)
<b>POLYNESIA</b>	Hawaii	TBD

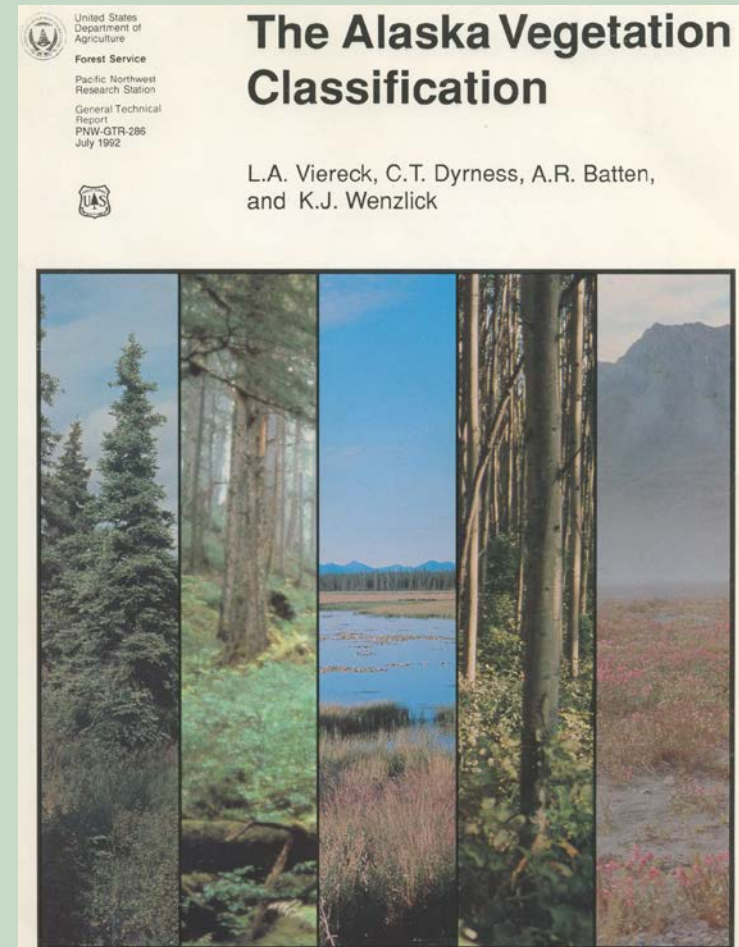
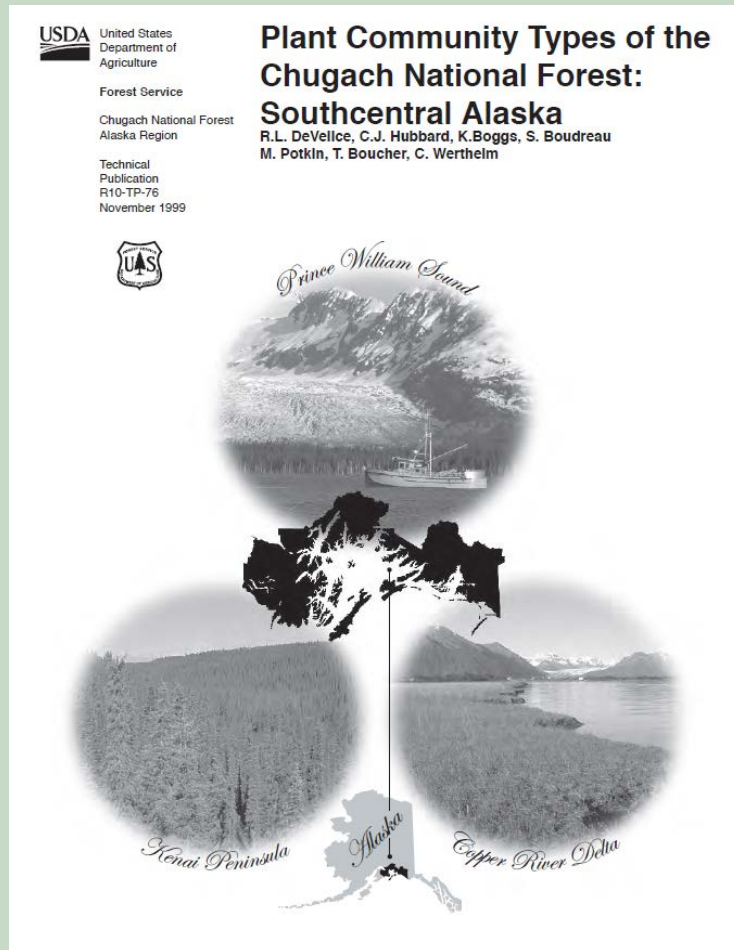
# NVC Review Board

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## Scope

- **Editorial Notes** will be relatively short, editorial improvements to existing type concepts in the USNVC.
  - changes typically handled directly by the NVC Review Board.
- **Revision Articles** published in *USNVC Proceedings*:
  - substantially revise existing type concepts or propose new type concepts. Articles are similar to journal articles.
- **Methods, Data, and Best Practices** discussions of sampling methods, data gaps, or best practices when analyzing data).

# Peer Review: Building on legacy data and original data



# USNVC and Alaska

<b>Level</b>	<b>USNVC (50 states &amp; territories)</b>	<b>Alaska</b>
Formation Class	6	4
Formation Subclass	15	5
Formation	32	8
Division	69	8
Macrogroup	183	32
Group	426	70 <sup>2</sup>
Alliance	1263 <sup>1</sup>	(46) <sup>3</sup>
Association	6168 <sup>1</sup>	(113) <sup>3</sup>

<sup>1</sup> includes only types in lower 48 states.

<sup>2</sup>in review

<sup>3</sup>in development

# Is USNVC a Mandatory Standard?

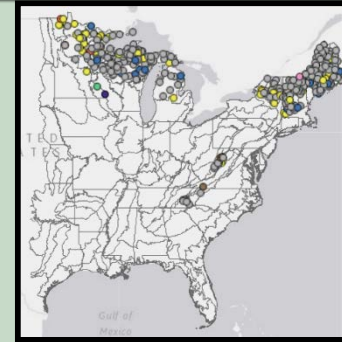
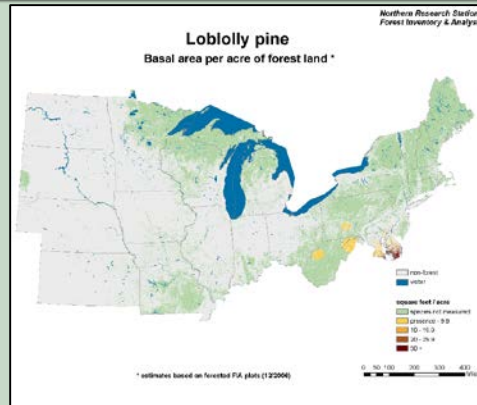
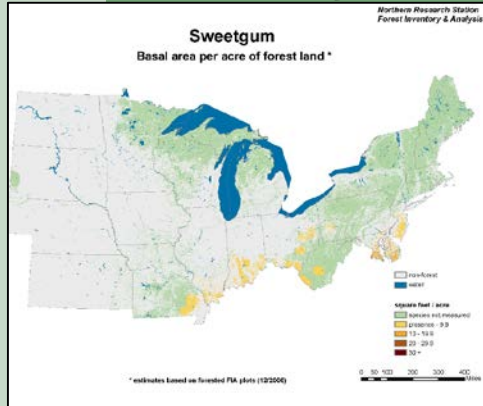
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- Federally-funded vegetation classification projects must collect, record, and classify data and information in a manner that allows others to “*crosswalk*” their vegetation classes to some level of the USNVC.
- Descriptions from a given project classification should be relatable to *descriptions* within the USNVC.
- Field data collected to support a federal agency project should meet the minimum *standards for vegetation data collection* set forth in the standard ([http://usnvc.org/wp-content/uploads/2011/02/NVCS\\_V2\\_FINAL\\_2008-02.pdf](http://usnvc.org/wp-content/uploads/2011/02/NVCS_V2_FINAL_2008-02.pdf));
- Agencies are free to use as primary classifications those that best meet their needs.

# USNVC STANDARD:

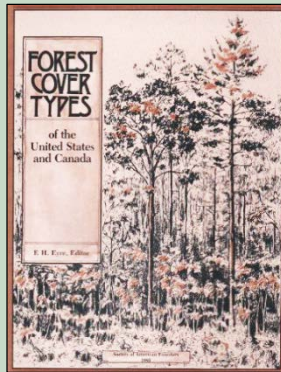
## Connectivity & links to other systems:

### FIA keys to FIA Forest Types or USNVC types



M014 Laurentian-Acadian Mesic Hardwood - Conifer Forest

M007 Longleaf Pine Woodland



FIA PLOT DATA

- ▼ 1 Mesomorphic Tree Vegetation Class ☑
  - ▼ 1.B Temperate & Boreal Forest & Woodland Subclass ☑
    - ▼ 1.B.1 Warm Temperate Forest & Woodland Formation ☑
      - ▼ 1.B.1.Na *Pinus palustris* - *Quercus hemisphaerica* - *Magnolia grandiflora* Forest & Woodland Division ☑
        - ▼ M305 *Liquidambar styraciflua* - *Pinus taeda* - *Triadica sebifera* Ruderal Forest Macrogroup ☑
          - ▼ G031 *Pinus taeda* - *Liquidambar styraciflua* - *Triadica sebifera* Ruderal Forest Group ☑
      - ▼ 1.B.2 Cool Temperate Forest & Woodland Formation ☑
        - ▼ 1.B.2.Na *Acer saccharum* - *Fagus grandifolia* - *Quercus rubra* Forest & Woodland Division ☑
          - ▼ M502 Appalachian-Northeastern Oak - Hardwood - Pine Forest & Woodland Macrogroup ☑
            - ▼ G495 *Pinus rigida* - *Quercus* spp. / *Morella pensylvanica* Forest Group ☑
        - ▼ 1.B.3 Temperate Flooded & Swamp Forest Formation ☑
          - ▼ 1.B.3.Nb *Taxodium distichum* - *Nyssa biflora* - *Quercus lyrata* Flooded & Swamp Forest Division ☑
            - ▼ M033 *Nyssa biflora* - *Quercus michauxii* - *Taxodium distichum* Basin Swamp & Flatwoods Macrogroup ☑
              - ▼ G038 *Nyssa biflora* - *Nyssa ogeche* - *Taxodium distichum* Basin Swamp Group ☑



# USNVC: Applications

WebTable 2. Examples of agency use of the USNVC levels

	<i>USNVC level</i>	<i>Possible agency application</i>
Upper	Level 1 – Formation Class	
	Level 2 – Formation Subclass	1. US Army Corps of Engineers – Stewardship
	Level 3 – Formation	1. US Army Corps of Engineers & Environmental Protection Agency (wetland mitigation) 2. Environmental Protection Agency – National Wetland Condition Assessment 3. National Marine Fisheries Service – Status and Trends of Wetlands in the Coastal Watersheds of the Conterminous United States (assessment)
Mid	Level 4 – Division	
	Level 5 – Macrogroup	1. US Forest Service Forest Inventory and Analysis Program (forest assessment) 2. Bureau of Land Management (regional assessments, land-use plans)
	Level 6 – Group	1. National Park Service Vegetation Inventory Program (natural resource inventory) 2. Fish and Wildlife Service (natural resource inventory, ecological integrity assessment) 3. US Forest Service Forest Inventory and Analysis Program (forest assessment) 4. LandFire (fire modeling) 5. US Geological Survey – GAP Analysis Program (habitat distribution) 6. Northeast Association of Fish & Wildlife Agencies (habitat inventory) 7. Western Governors Association Initiative on Wildlife Corridors and Crucial Habitat (wildlife habitat inventory) 8. State Natural Heritage Programs (natural resources inventory)
Lower	Level 7 – Alliance	1. National Park Service Vegetation Inventory Program, State Natural Heritage Programs (natural resources inventory)
	Level 8 – Association	1. National Park Service Vegetation Inventory Program, State Natural Heritage Programs (natural resources inventory)

# Summary

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- The USNVC is working in a fashion that is open, transparent and compliant with FGDC standards.
- Meets missions of federal agencies, ESA Panel, NatureServe, and partners.
- A data management structure has been designed:
  - considerable increases in efficiency and turnover,
  - considerable decreases in personnel expense, and
  - improved data access for the user community.
- Need to assure continued viability and increased usability of VegBank plot data archive.



[www.usnvc.org](http://www.usnvc.org)



THANK YOU!